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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/644,975	08/21/2003	Mei-Rung Tseng	0941-0814P	6357
2292	7590	01/24/2006	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			QUARTERMAN, KEVIN J	
			ART UNIT	PAPER NUMBER
			2879	

DATE MAILED: 01/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/644,975

Applicant(s)

TSENG ET AL.

Examiner

Kevin Quarterman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-20,22-25 and 27-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20,22-25 and 27-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Amendment***

1. Applicant's amendment and remarks received 27 December 2005 have been entered.

### ***Drawings***

2. The replacement-drawings were received on 27 December 2005. These drawings are acceptable.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 2, 5-20, 22-25, and 27-29 are rejected under 35 U.S.C. 102(e) as being anticipated by Raychaudhuri (US Pub. 2004/0140758).
5. Regarding independent claim 1, Figure 3 of Raychaudhuri shows an organic electroluminescent device comprising a substrate (101); a first electrode (108) on the substrate; an organic luminescent layer (105) on the first electrode; a second electrode (107) on the organic luminescent layer, wherein the organic luminescent layer is between the first electrode and the second electrode; and a nanostructured organic electroluminescent recovery layer (109) comprising dielectric or organic material, doped

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with nanoscale metal particles, wherein the nanoscale metal particle is different from the dielectric or organic material. The Examiner notes that Raychaudhuri does not use applicant's nomenclature of a "nanostructured organic electroluminescent recovery layer" but instead refers to layer 109 as a "transmissive enhancement layer" having a thickness of 20-150nm (pg. 4, ¶ [0068]). Since Raychaudhuri discloses the layer being *nanostructured* and having *nanoscale* metal particles, as evidenced by its thickness, the Examiner notes that applicant's claimed nanostructured organic electroluminescent recovery layer and Raychaudhuri's transmissive enhancement layer only differs by name.

6. Regarding claim 2, Figure 3 of Raychaudhuri shows the nanostructured organic electroluminescent recovery layer (109) on the substrate between the substrate (101) and the first electrode (108).

7. Regarding claim 5, Figure 5 of Raychaudhuri shows the nanostructured organic electroluminescent recovery layer (109x) on the second electrode (107x).

8. Regarding claim 6, Figure 5 of Raychaudhuri shows the organic luminescent layer comprising a single organic luminescent layer (105).

9. Regarding claim 7, Figure 5 of Raychaudhuri shows the organic luminescent layer comprising stacked organic luminescent layers (103, 104, 105, 106).

10. Regarding claim 8, Raychaudhuri discloses the organic luminescent layer comprising fluorescent luminescent material or phosphorescent luminescent material (pg. 4, ¶ [0064]).

11. Regarding claim 9, Raychaudhuri discloses the organic luminescent layer comprising molecular organic luminescent material (pg. 4, ¶ [0062-0064]).
12. Regarding claim 10, Raychaudhuri discloses the organic luminescent layer comprising polymer organic luminescent material (pg. 4, ¶ [0062-0064]).
13. Regarding claim 11, Raychaudhuri discloses the substrate being transparent or opaque glass or plastic (pg. 3, ¶ [0043]).
14. Regarding claim 12, Raychaudhuri discloses the substrate being transparent glass (pg. 3, ¶ [0043]). The Examiner notes that even though claim 12, which depends upon claim 11, lists particular materials for a plastic substrate, claim 11 requires the substrate to be glass or plastic.
15. Regarding claim 13, Raychaudhuri discloses the first electrode (108) being transparent, metal, or complex (pg. 4, ¶ [0067]).
16. Regarding claim 14, Raychaudhuri discloses the second electrode (107) being transparent, metal, or complex (pg. 4, ¶ [0066]).
17. Regarding claim 15, Raychaudhuri discloses the transparent electrode being ITO, IZO, AZO or ZnO (pg. 3, ¶ [0044]).
18. Regarding claim 16, Raychaudhuri discloses the transparent electrode being ITO, IZO, AZO or ZnO (pg. 3, ¶ [0044]).
19. Regarding claim 17, Raychaudhuri discloses the metal electrode being selected from the group consisting of Li, Mg, Ca, Al, Ag, In, Au, Ni, Pt, and alloys thereof (pg. 4, ¶ [0067]).

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20. Regarding claim 18, Raychaudhuri discloses the metal electrode being selected from the group consisting of Li, Mg, Ca, Al, Ag, In, Au, Ni, Pt, and alloys thereof (pg. 4, ¶ [0066]).

21. Regarding claim 19, Raychaudhuri discloses the complex electrode comprising stacked layer electrodes of Li, Mg, Ca, Al, Ag, In, Au, Ni, Pt, ITO, IZO, AZO or ZnO (pg. 3, ¶ [0044-0045]).

22. Regarding claim 20, Raychaudhuri discloses the complex electrode comprising stacked layer electrodes of Li, Mg, Ca, Al, Ag, In, Au, Ni, Pt, ITO, IZO, AZO or ZnO (pg. 3, ¶ [0065-0066]).

23. Regarding claim 22, Raychaudhuri discloses the dielectric material for the nanostructured organic electroluminescent recovery layer being selected from the group consisting of silicides, oxides, carbides, nitrides, and combinations thereof (pg. 4, ¶ [0068]).

24. Regarding claim 23, Raychaudhuri discloses the dielectric material for the nanostructured organic electroluminescent recovery layer being selected from the group consisting of silicon oxide, aluminum oxide, magnesium oxide, silicon nitride, aluminum nitride, and magnesium fluoride (pg. 4, ¶ [0068]).

25. Regarding claim 24, Raychaudhuri discloses the nanoscale metal particles being selected from the group consisting of Au, Ag, Al, Ge, Se, Sn, Sb, Te, Ga, or combinations thereof (pg. 4, ¶ [0068]).

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26. Regarding claim 25, the Examiner notes that the method of forming the nanostructured organic electroluminescent recovery layer is not germane to the patentability of the device itself (MPEP § 2113).

27. Regarding claim 27, Raychaudhuri discloses the organic material of the nanostructured organic electroluminescent recovery layer comprising molecular or polymer organic material (pg. 4, ¶ [0068]).

28. Regarding claim 28, Raychaudhuri discloses the nanoscale metal particles being selected from the group consisting of Au, Ag, Al, Ge, Se, Sn, Te, Ga, and combinations thereof (pg. 4, ¶ [0068]).

29. Regarding claim 29, Raychaudhuri discloses the nanoscale metal particles doped into the organic material (pg. 4, ¶ [0068]). The Examiner notes that the method of forming the nanostructured organic electroluminescent recovery layer is not germane to the patentability of the device itself (MPEP § 2113).

### ***Claim Rejections - 35 USC § 103***

30. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

31. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

32. Claims 3-4 and 30-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raychaudhuri (US Pub. 2004/0140758).

33. Regarding claims 3-4 and 32-33, Raychaudhuri teaches the limitations of independent claim 1 discussed earlier but fails to exemplify the nanostructured organic electroluminescent recovery layer being on the first electrode and between the first electrode and the organic luminescent layer or on the organic luminescent layer and between the organic luminescent layer and the second electrode.

34. However, Raychaudhuri shows in Figures 4 and 5 that the nanostructured organic electroluminescent recovery layer (109, 109x) may be located in different positions.

35. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to position the nanostructured organic electroluminescent recovery layer of Raychaudhuri on the first electrode and between the first electrode and the organic luminescent layer or on the organic luminescent layer and between the organic luminescent layer and the second electrode, since rearranging parts of an invention involves only routine skill in the art (MPEP § 2144.04 VI).



36. Regarding independent claim 30, Raychaudhuri teaches the like limitations of independent claim 1 discussed earlier but fails to exemplify first and second nanostructured organic electroluminescent recovery layers.

37. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the device of Raychaudhuri with first and second nanostructured organic electroluminescent recovery layers, since the mere duplication of parts has no patentable significance (MPEP § 2144.04 VI)

38. Regarding claim 31, Figure 3 of Raychaudhuri shows the nanostructured organic electroluminescent recovery layer (109) on the substrate between the substrate (101) and the first electrode (108).

39. Regarding claim 34, Figure 5 of Raychaudhuri shows the nanostructured organic electroluminescent recovery layer (109x) on the second electrode (107x).

### ***Response to Arguments***

40. Applicant's arguments filed 20 July 2005 have been fully considered but they are not persuasive.

41. In response to applicant's argument that Raychaudhuri does not teach the transmission enhancement layer being doped with any dopant such as a nanoscale metal particle as recited in the amended claims, the Examiner respectfully disagrees. Raychaudhuri discloses (¶ 0068) the layer including, in addition to other materials, aluminum-doped ZO (zinc oxide). Applicant discloses (page 7, line 27) aluminum as a possible material for the nanoscale metal particle. Zinc oxide is a known dielectric material (See, for instance, US 5,891,554).

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42. Applicant notes that the term "nanoscale" means *having dimensions measured in nanometers*. The Examiner notes that Raychaudhuri discloses the transmission enhancement layer having a thickness of 20nm to 150nm (¶ 0068), which is in a *nanoscale* range.

43. Thus, the Examiner holds that Raychaudhuri teaches the transmission enhancement layer comprising dielectric material doped with nanoscale metal particles as claimed in the instant application.

### ***Conclusion***

44. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

45. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

**Contact Information**


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Quarterman whose telephone number is (571) 272-2461. The examiner can normally be reached on M-TH (7-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin Quarterman  
Examiner  
Art Unit 2879

kq   
18 January 2006

  
Joseph Williams  
Primary Examiner  
Art Unit 2879